

Models of Buprenorphine Induction

Erik Gunderson, MD, FASAM AMERSA



Erik Gunderson, MD, Disclosures

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System Requirements

- In order to complete this online module you will need Adobe Reader. To install for free click the link below:
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Target Audience

- The overarching goal of PCSS-MAT is to make available the most effective medication-assisted treatments to serve patients in a variety of settings, including primary care, psychiatric care, and pain management settings.
- The target audience for the current module should have basic familiarity with the general process of BUP induction as covered by the standardized, designated 8-hour training programs.

Educational Objectives

- At the conclusion of this activity participants should be able to:
 - List barriers reported by physicians to initiating buprenorphine (BUP) in an office setting
 - Determine the goals of induction
 - Identify different clinical models of BUP induction and associated evidence
 - List the pros/cons of the various models of BUP induction

Induction Goals

- Initiate effective BUP dosing
 - Reduce withdrawal
 - Reduce cravings
 - Stop non-rx opioid use
- Avoid adverse effects
- Establish care structure
 - Sets the tone regarding structure, follow-up, and monitoring
 - Helps establish patient rapport, develop therapeutic alliance

Induction Challenge

- Barrier for inexperienced MD adoption¹⁻⁴
- Concern related to:
 - Precipitated withdrawal transitioning from full -> partial mu agonist
 - Logistics of office induction: time/resources for assessment & monitoring response to initial doses
 - Economics
 - Guideline ambiguity: variable dosing/timing recs
 - Patient-specific factors: e.g., clinical stability

Patient Induction Concerns

- Withdrawal symptoms
- Travel for office induction
 - Rural: long distances potentially burdensome
 - Disenfranchised: limited transportation access
 - Driving discouraged after medication initiation.
 Unclear if driving ability is impaired by opioid withdrawal prior to visit.
 - Anonymity: potentially compromised if pt is in withdrawal in the office or if needs to access a ride
- Patient perspectives data are needed

This Lecture Covers

- 3 models of induction for office practice
 - General in-office approach: the standard approach recommended in CSAT, TIP 40 & 8-hr courses
 - Specialty approach (non-Opioid Treatment Program (OTP)): Could this facilitate induction for some patients/practices?
 - Unobserved "home" approach: patient self-initiated often with clinician phone support

General In-Office Induction

- National guidelines (CSAT, TIP 40, 2004)
 - Withdrawal: should be mild moderate, but no specific recommendations regarding measurement cut-offs
 - Abstinence timing: varies based on opioid duration of action
 - 12 24 hr short-acting
 - 24+ hr methadone
 - Dose: 2 4mg initial BUP dose, 8mg maximum on Day #1
 - Monitor: 2+ hours, assessing treatment response

General In-Office Induction

- Updated PCSS guidance¹
 - Measure withdrawal, several scales available such as:
 - Clinical Opioid Withdrawal Scale (COWS 12–16 is mild/moderate and appears sufficient to avoid precipitated withdrawal²)
 - Hours of abstinence since last full mu opioid use
 - 12-16 short-acting, 17-24 intermediate-acting, 30-48 methadone
 - BUP dose: 2 4mg initial, 16mg max day #1
 - Monitor: 1+ hours
 - Follow-up: phone + visit in 3 4 days

Clinical Opioid Withdrawal Scale (COWS)

- 11 item scale, max 48 points
 - Includes both objective and subjective items
 - Pulse
 - Diaphoresis
 - Tremor
 - Pupils dilated
 - Yawning
 - Runny nose/tearing

- Gl upset
- Restlessness
- Bone/joint ache
- Anxiety
- Gooseflesh
- Objective withdrawal signs help establish physical dependence
- Serial scales for treatment response assessment

In-Office Induction Effectiveness

- Few studies specifically assess induction outcome
 - 83% treatment retention after a 2 week induction phase in a primary care study¹
 - Variable precipitated withdrawal²⁻⁴
 - 10% in a 1° care/specialist clinic³
 - 6+ hr heroin abstinence minimum prior to induction
 - None in residential program⁵
 - Mean COWS prior to induction: 8
 - * 1/3 ancillary withdrawal medication use

General In-Office Induction

- Summary
 - Variation in abstinence & dosing recommendations may pose a clinical challenge
 - Withdrawal scale cutoffs are useful to guide induction
 - Time requirement is potentially burdensome
 - Complication rate is generally low

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 - Specialty approach (non-OTP)
 - Unobserved "home" approach

Specialty Induction Approaches

- Two specialized induction approaches will be reviewed:
 - Outpatient Buprenorphine Treatment Program¹
 - Established 2003 with a goal as an induction center
 - Induction data were collected early after program inception
- General Medical Hospital Induction Study²
 - Examined induction vs. detoxification on a medical ward
 - Coupled with outpatient primary care maintenance linkage

Buprenorphine Program of Columbia University

- Outpatient psych practice established 2003
- Staffing
 - MD 2 addiction specialists
 - Clinical psychologist
 - RN
 - Administrator
- Self-pay with insurance reimbursement

Clinical Procedures

- Pre-induction visit
 - Clinical assessment by MD/psychologist
 - Procedural review (changed 3 months after program start)

Abstinence: Initial

- 12 hr short-acting
- 24 hr long/methadone

~ 3 Months Later

- 16 hr short-acting
- 24 hr long-acting
- 36 hr methadone
- Ancillary withdrawal medication available at the program
 - Clonidine
 - NSAIDs
 - Ondansetron



Induction Visit Procedures

- COWS on arrival and serially
 - General target score 5-12 prior to starting BUP
 - After the first 3 months of experience, began to require > 1 objective sign and raised the pre-dose COWS target to >7
 - Discharge after the COWS decreased to < 4
- Dosing
 - 2-4mg q1-2 hr (BUP/NX or BUP) started at program
 - Take home meds + instructions/phone #s
 - Max 16mg Day 1
 - Initial Rx/stored on site > dispensed (Requires locked storage and detailed documentation)
- Ancillary withdrawal meds taken prn before or after initiation

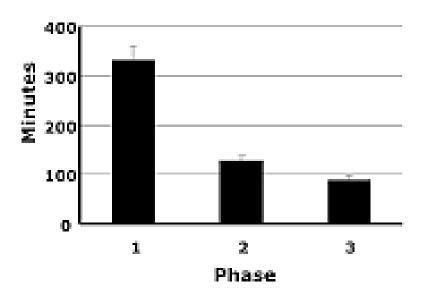
Induction Effectiveness Study

- Chart review¹ for the first 41 patients examined:
 - Temporal process of induction
 - Time until first BUUP dose given
 - Time unit withdrawal was relieved
 - Total time at clinic
 - Procedures associated with efficiency
 - Withdrawal level and BUP dosing
 - Hypothesis: ↑efficiency over phases
 - Each phase included ~13-14 patients over a 2-3 month period after the program opened

Patient Characteristics (n=41)

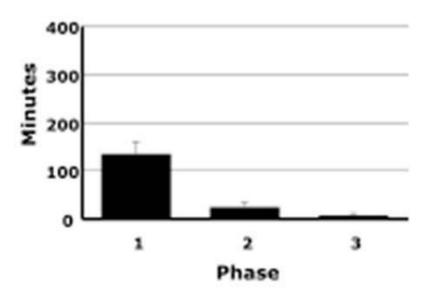
| Age (mean) | 41 yr |
|--------------------------------|-------|
| Sex (Male) | 59% |
| Race (White) | 78% |
| Employed | 56% |
| Insured | 83% |
| Psychiatric d/o | 68% |
| Primary opioid, past mo. daily | |
| Heroin | 41% |
| Rx opioid (non-methadone) | 41% |
| Methadone | 22% |
| Prior buprenorphine | 5% |

Total Time at the Clinic



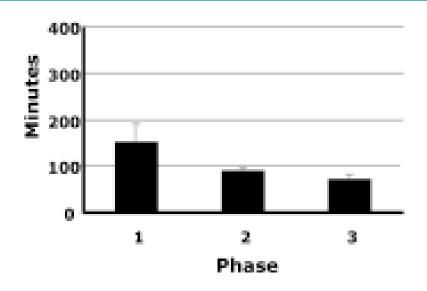
- Efficiency improved across the phases
 - Time may pose less of a practical burden for office induction as experience is gained
 - Several factors may have influenced efficiency

Time Delay Until Initial Dose



- The delay until the initial dose was longer for Phase 1
 - May have related to change in recommended pre-BUP abstinence with patients from later phases arriving in more withdrawal
 - Means COWS on arrival: 6 for Phase 1, 10 for Phases 2 & 3

Time Until Withdrawal Relief



- The time until withdrawal relief was longer for Phase 1
 - Might have related to initial BUP dose size and pre-dose ancillary withdrawal medication use (depicted next slide)
 - COWS immediately before the initial dose did not differ by Phase (mean score = 10)

Medication Dosing

| Buprenorphine Dosing (mean mg) | | Phas e | | |
|--|-------|-----------|-----|--|
| | | 2 | 3 | |
| Initial dose | 2* | 3 | 3 | |
| Total at program | 9 | 7 | 6 | |
| Total Day #1 (includes at program + take home) | 13 | 11 | 14 | |
| Ancillary withdrawal medication use (%) | | | | |
| Pre-induction | 7* | 31 | 57 | |
| Post-induction | 20% o | verall (| NS) | |

Procedural Considerations

- Factors that may facilitate induction¹
 - Longer abstinence before BUP initiation (16h, 24h, 36h for short-acting opioids, long-acting formulations, and methadone, respectively)
 - COWS 8-10 with objective signs appears adequate, though 12 might be preferable based on a clinical trial²
 - Ancillary withdrawal meds could be considered
- Day 1 max 16mg was well tolerated
- Efficiency improves with experience, potentially could translate to other office settings

Hospital-Based Induction

- General Medication Hospital Induction Study¹
 - Objective: Examine effectiveness of buprenorphine treatment initiation during a 5-day medical hospitalization
 - Design: Randomized clinical trial comparing 1) hospitalbased buprenorphine induction with linkage to outpatient primary care after discharge for opioid agonist treatment (OAT) vs. 2) hospital detoxification
 - Main outcome measures:
 - Entry and sustained buprenorphine maintenance at 1,
 3, & 6 months
 - Prior 30-day use of illicit opioids (self-report)

Hospital-Based Induction

Invention

- Day 1: Induction with buprenorphine/naloxone 2/0.5, max QID, for both treatment groups
- Day 2 5:
 - Detoxification Group: BUP 8mg > 6mg > 4mg > 2mg (Days 2-5, respectively)
 - Linkage Group: BUP 12mg on Day 2, 16mg on Days 3-5 with research staff facilitated linkage to hospital-associated primary care buprenorphine OAT

Patient Characteristics (n=139)

| Age (mean) | 41 yr |
|---|-------|
| Sex (Male) | 71% |
| Race (White) | 43% |
| Baseline illicit opioid use (past 30d), mean days | 21 |
| Baseline past month prescription opioid agonist treatment | 41% |

 The intervention groups did not differ significantly regarding demographics, baseline frequency of opioid use or opioid agonist treatment

Hospital-Based Induction

Results¹

- Buprenorphine OAT entry was significantly more likely in the hospital-based induction and linkage group compared to the hospital detoxification group (72% vs. 12%, p < .001).
- At 6 months, 17% of linkage vs. 3% detox patients were receiving buprenorphine OAT (p=.007)
- Linkage patients reported less past 30d illicit opioid use at the 6 month interview

Specialty Induction Approaches

- Potential Specialty Induction Approach Limitations
 - Accessibility: dedicated outpatient and inpatient induction programs are of limited availability
 - Cost: the cost of such approaches may be prohibitive for patients and may not be cost-effective relative to outpatient induction
 - Resources: the staffing and other resources required for outpatient program induction and inpatient induction with linkage may be a barrier for approach adoption

This Lecture Covers

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 - Unobserved "home" approach

Unobserved "Home" Induction

- PCSS Guidance (2013)¹
 - Experienced clinicians (and patients) probably better suited for unobserved approach than inexperienced
 - Provide written instructions about withdrawal assessment, dose timing and amount
 - Maintain and document phone contact
 - Follow-up visit within 2 days
 - Overall supporting level of evidence: Low/Moderate, though many unobserved inductions likely performed without adverse effects

Implementation

- ~40% Massachusetts prescribers utilize unobserved induction at least some of the time¹
- >1100 patients in U.S. published reports²⁻⁸
 - Procedures appear generally c/w PCSS guidance9
 - Adoption appears more widespread in academic primary care clinics
 - Most data are prospective or retrospective cohort
 - Only 1 published RCT, a pilot study described as follow

Clinical Procedures

- Adapted from a NIDA-funded pilot study1
 - Pre-visit phone
 - Initial visit
 - Patient assessment
 - Procedural review
 - Decision making discussed
 - Patient handouts reviewed

- Patient assessment
 - Establish diagnosis
 - Use pattern (type/amount/duration/route)
 - Document physiological dependence
 - Co-morbidity
 - Goals and motivation
 - UDS/Rx monitoring program

- Procedural review with patient
 - Abstinence timing: 16, 24 36+ hrs for transition form short/long-acting opioids, and methadone, respectively
 - Withdrawal toleration vs. precipitated withdrawal risk reduction
 - Subjective Opioid Withdrawal Scale (SOWS)¹
 - 16 items, 0-4 scale, ≥17 (mild) prior to initiation
 - Bup dosing: target the minimally effective dose*
 - Consider ancillary withdrawal medication but not standardized

- Procedural review, continued
 - Safety
 - Interaction risks, avoiding driving, safe storage
 - Precipitated withdrawal avoidance: review abstinence recommendations
 - Follow-up plan
 - Phone contact the day of induction and on subsequent days
 - Visit in 3-7 days

- Patient handouts: review when/how to start
 - SOWS ≥17 (higher if possible) as a goal before dosing
 - Bup dosing
 - 1-2 mg to start, then q2hr prn
 - Max 8 mg day #1 (16 mg maximum ok'd by phone)
 - Day #2
 - Total day #1 in the morning (can split BID)
 - 2 mg q2hr prn, mx 16 mg (24 maximum ok's by phone)

Unobserved Induction Outcome Data Summary

- Effectiveness: 1 wk success ~70%¹⁻² defined as being in treatment, on Bup, and free of withdrawal
- Safe: AE's appear generally mild/infrequent¹⁻⁴
 - 1-5% precipitated withdrawal
 - 5-20% prolonged withdrawal
- Increased risk of AE's appears to occur with¹⁻³
 - Methadone transfers
 - Bup inexperience
 - Procedural non-adherence

Observed vs. Unobserved

| Potential factors to consider | Observed | Unobserved |
|---|----------|------------|
| Effective and tolerability | +++ | +(+) |
| Establish treatment structure | +++ | - |
| Development of therapeutic alliance | ++ | -/+ |
| Confirm baseline withdrawal (and presence of physiologic dependence | +++ | -/+* |
| Convenience/preference | | |
| ■ MD | -/+ | +++ |
| Patient | -/+ | ++ |
| Resources/cost | | + |
| Co-morbidity | -/+ | -/+ |

^{*} Note: pt's can present for evaluation in mild withdrawal but start Bup out of the office

Summary

- Induction is challenging aspect of treatment
- Hopefully practice-based evidence from different induction approaches will help improve induction efficiency, implementation, and effectiveness
- Several models of induction are available for initiating buprenorphine treatment, including observed and unobserved "home" approaches
- Pros/cons of the various models of induction should be considered by clinicians, patients, and policy makers

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